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ABSTRACT

Computer retailers and manufacturers have found providing appropriate instruction to be an essential part of marketing and selling their products. Most computer stores have classrooms in which courses are offered, providing an informal, interactive atmosphere for the instruction. The microcomputer market has split into two major segments: the personal and professional markets. Computers are marketed differently to these segments, and much more instruction is provided to the latter. Computer centers in Sears and Macy's offer demonstration disks and free instruction. Texas Instruments retail outlets, and ComputerLand and Radio Shack computer centers offer individual and class instruction as well as on-site training. Corporate approaches to computer literacy include Digital's computer-based, interactive, self-paced instruction through its Educational Services Division; Xerox's seminars; and Control Data's sale of educational services through various subsidiaries. Two physical characteristics that might affect learning in a computer school are density and privacy. Retail stores are not schools because they lack elements essential to an environment for disciplined learning--an authority structure that makes students subordinate to teachers, a formal method of evaluation, externally imposed incentives, and rewards. The instruction offered is a service rather than schooling. (YLB)

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THE EDUCATION OF A MARKETPLACE: THE ROLE OF COMPUTER STORES IN ENCOURAGING A COMPUTER LITERATE SOCIETY.

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(Written for a course at Northwestern University, July 1983)

Over the last five years, the microcomputer has transformed itself from a little-known technical breakthrough into the hottest high-ticket item in a largely stagnant economy. To effect this transformation, the microcomputer has had to overcome several obstacles--hostility, expense, apprehension, and the complex task of learning to use it.

The stores that sell microcomputers, and the corporations that manufacture them, are in a unique position. Their product is in great demand, but potential customers are frequently uncertain about what they want a computer for, and new owners usually have to be taught how to accomplish whatever purpose they bought their computer to serve. The computer store, thus, must offer its customers instruction, often extensive, in the use of their product both before and after purchase.

Articles about selling computers have compared the microcomputer phenomenon to three other twentieth-century innovations--the automobile, the television, and the single-lens-reflex camera.[1] The comparisons are apt, but each represents only one aspect of the microcomputer's potential impact. Micros are like cars in their utility and social impact, like TVs in their growing ubiquity, and like the SLR camera, in that some learning time is essential to being able to use one. But the microcomputer also differs from these products in several significant ways, all of which influence the role of the retailer. Although the computer may enter American homes at the same rate TV sets did,[2] the latter needed no more than turning on to be put to use. Cameras require extensive instruction in order to be used well, but passable photographs can be produced by simply pushing the right buttons. Neither situation applies to the microcomputer, making it a product without precedent in the consumer market.

Although the popular game-playing home computers are little more complicated than an arcade game, the more complex personal computer requires a

substantial investment of time, and often intellectual energy, in order to learn to use it. Computer retailers and manufacturers have found providing appropriate instruction an essential part of marketing and selling their products.[3] However, despite the significance of training, there is little comprehensive information available on the instruction offered. Calls to two major trade papers serving computer retailers led to no references to the subject. Recent indexes to business, education, and computer periodicals list many articles on the microcomputer boom, but they make only incidental mention of instructional needs of purchasers.[4]

Visits to computer stores in the Chicago area reveal that most of those selling the more expensive personal computers offer courses to customers and the general public, and all but one store indicated that the need for this function is increasing. However, calls to leading computer manufacturers resulted in little information about the instructional aspects of their sales efforts. A check on marketing literature also uncovered no research on instruction as part of the "marketing mix," either in general or applying to the computer in particular.

The computer store is a setting for teaching and learning, though little studied or commented upon. It may be a short-lived phenomenon as well. As computers are incorporated into homes and offices, and as children become increasingly computer literate through the schools, the computer store may not have to serve this educational function for long. But while it does, it offers a novel setting for considering teaching and learning.

A recent article in Fortune magazine states that, "80% of the [computer specialty] stores offer training, often in a little, computer equipped room."[5] If the stores visited in preparation for this paper are typical, this figure is accurate, and both physical and social-psychological aspects of computer retailing contribute to this instructional function. Most computer stores have

classrooms, typically glass-walled rooms at the rear of the store in which courses are offered. And the informal, interactive atmosphere of most stores is instructional as well. At computer specialty shops, this is shirt-sleeved retailing, with customers and salespeople intermingling to exchange information, share problems and solutions, perhaps indulge in a bit of braggadocio as well. Uninitiated customers are awed by the marvels of the machines, those more experienced want to know what else their computers can do for them, and salespeople are generous about demonstrating applications to the former and meeting the needs of the latter--both on the assumption that there is money to be made in offering this training.

COMPUTERS FOR EVERYONE

Before discussing the kinds of training and instruction offered by computer retailers and manufacturers, some clarification of terms is necessary. The microcomputer market has split into two major segments over the past two years: the home and the personal or professional market. Computers are marketed differently to these segments, due mainly to profit margins on the two kinds of machines, and much more instruction is provided with the latter than with the former.

Home Computers

The home computer market, although greater in units sold and public impact, is smaller in terms of dollar volume.[6] Currently popular brands include Atari and Commodore, Timex-Sinclair and Texas Instruments. They are sold in discount, department, and toy stores such as K-Mart, Wards, Woolco, Venture, and Toys 'R' Us, for prices that currently range around $100 and up. There are now thousands of outlets for these computers, most of which have only been established since mid 1981. These computers consist mainly of a keyboard and a microprocessor housed in a plastic case or console and require attachment to a television set

which functions as a monitor. The range of peripherals (printers, disk drives, extra memory, etc.) that can be connected to them is limited and varies from one machine to another. Presently, they can be used for little more than playing games, programming exercises, and some home management tasks.

This is now the most volatile part of the computer market--vigorous price cutting by manufacturers sent prices for many machines from $300 to $500 in January 1982 to less than $100 now.[7] Little instruction accompanies their purchase; retailers cannot afford to provide it. Visits to retail outlets revealed that some manufacturers produce good self-instructional manuals, both for display and for enclosure with equipment purchased. Some salespeople, however, intrigued by the machines themselves, offer additional instruction.

A fascinating aspect of this computers-for-almost-everyone phenomenon--surely the case when the machines are available for the cost of a black-and-white TV--is that American industry, spurred by the profit motive, is willy-nilly encouraging the development of a computer literate society. While parent groups and professionals ponder how the schools should respond to the necessity of providing computer literacy, free enterprise and our retail distribution network is accomplishing the task, spurred by the invisible hand rather than a sense of duty.

The schools have certainly played their part in this--children who have learned the rudiments of computing in school drag their parents into the neighborhood discount emporium to bring home a computer--but it is profits rather than educational policy that put affordable computers into these stores in the first place. Parental compulsion to purchase a computer for their children's educational advantage has been compared to seduction by the old-time encyclopedia salesmen, who used the same pitch.[8] As a society, we tend to consume educational artifacts rather than absorb the content of knowledge. Inexpensive computers may be combining these tendencies into a socially desirable goal.

Personal Computers

The personal computer segment of the industry supplies more versatile and expensive machines to professionals, businesses, and the more sophisticated (and prosperous) home market. Well-known brands include Apple, IBM PC, TRS-80, Digital, and the portable Osborne and Compaq. These computers are sold through national chains of computer specialty stores (such as ComputerLands), some independents, Tandy's extensive chain of Radio Shacks, and retail outlets established in the last few years by Xerox, IBM, Digital, and Sears. These computers cost $2000 to $5000 for basic equipment and $10,000 and more for a complete system.

Systematic forms of instruction are offered by the specialty stores and are increasingly supported by pre- and postpurchase instruction provided by manufacturers as well. In the past few months these have taken the form of manufacturer-produced demonstration software designed to instruct customers and to lessen the time salespeople need to spend with them individually. A form of computer-based instruction, these interactive disks provide an excellent introduction to computer literacy.

As the personal computer that most attracted the public's imagination, Apple has worked to create a computer literate society, thereby creating a market for its products and setting a standard for the industry. Further, Apple is the only major personal computer manufacturer that does not have its own chain of retail outlets. To get its products to the market, Apple has enticed the public into computer stores and supported their dealers with service and instruction.[9]

Apple has pioneered the development of "user-friendly" equipment and marketing it in a nonthreatening, low-tech manner. Apple ads aim to sell computers by increasing computer literacy. Beginning, perhaps, with the radio campaign featuring Dick Cavett, Apple promoted its computer by having a

nationally popular figure talk about what an Apple could do for a family, for your family in fact. This approach has been continued with magazine ads asking such questions as: "Will someone please tell me exactly what a personal computer can do?", which goes on to list 100 uses an Apple can be put to. Another ad asks: "Will someone please tell me what an Apple can do?" and then lists thousands of programs available for use with an Apple.

In an interview in June 1982, Apple's then chief executive, A.C. Markkula, talked about Apple's commitment to lessening customer learning time before and after purchase.[10] Markkula estimated that purchasers then needed to invest 20 hours of time to learn to use a personal computer and that in order to attract a really large market, this time had to be cut substantially because few people are willing to invest that much. He said that Apple's intention was to cut this to 20 minutes by "reducing dependence on the keyboard."

An example of Apple's efforts to reduce user learning time is an interactive demonstration disk that became available this spring. Its purpose is to enable customers to do something with an Apple prior to purchase and to free salespeople from spending hours with each individual customer. The disk provides an introduction to popular applications such as word processing, spreadsheet analysis, and database management, and it offers potential customers hands-on experience, an example of using a computer to teach people how to use a computer. Other manufacturers are also offering demonstration disks for their personal computers, but none are as instructional, or as interactive, as those produced by Apple.

Apple has also produced the Apple Information Center, an interactive videodisc system that uses a touch-sensitive screen to provide information about personal computer applications and Apple products.[11] The disc answers questions commonly asked by potential customers, and does so without reliance on a keyboard. It is an example of Apple's commitment to ever more friendly computers and an introduction to the possibilities of laser-based technology, likely to be the electronics marvel of the 1980s.

SELLING COMPUTER LITERACY

The market for personal computers originally created by Apple rapidly attracted competition. The first computer store opened in Santa Monica, California, in 1975, and there are now possibly 2000 computer specialty stores nationwide. Led by IBM, personal computer manufacturers are increasingly competitive about selling basic equipment at highly attractive prices. Profits are made on the additional equipment and software that users purchase as they become more adept with their equipment and acquire more needs. Judging from prices charged for the classes offered by most personal computer retailers--$10 to $20 an hour for group instruction--they are possibly making money from their teaching function as well.

There are presently several chains of computer specialty stores, which are rapidly growing in number, but few independent computer retailers, who have been undercapitalized and cannot afford the economies of scale that chains can. The computer giants--IBM, Digital, Control Data, and now Xerox--have become shopkeepers in order to get their products to market. Two giant retailers--Sears and Macy's--also went into the computer business. Their centers, designed to attract small business owners, represent some ways personal computers are being sold to consumers.

According to business press reports, both Sears and Macy's established computer centers to experiment with how to sell to this market. Features of both when opened were disks at each computer which demonstrated popular applications--accounting, filing, spreadsheet analysis, education, and entertainment. Sears estimated that the customer decision process consumed three visits and eight hours, and no doubt intended these disks to lessen sales time as well as offer instruction. Macy's store offered a free, hour-long prepurchase seminar and three hours of postpurchase instruction taught by salespeople and manufacturers representatives in a room set up to resemble a classroom.[12]

As its retail outlets explicitly sell courses rather than computers, Texas Instruments provides an example of another approach. Despite technical preeminence and the charm of Bill Cosby, TI has had a difficult time selling its microcomputers. Burdened by oversupply and functional problems, it has led the price cutting spiral of home computers sold through mass merchandisers and discount houses.[13] Rather than opening a chain of stores, TI has announced the establishment of learning centers around the country. In Chicago, for instance, there is one at the Merchandise Mart's Business Products Center, and courses are also held in satellite centers at high schools and colleges in the area. A brochure describing the centers sets forth computer literacy as a "must know" area in today's world and stresses that TI is bringing these courses and workshops to "your community" to help potential purchasers choose the right product for their needs.

TI's current catalog lists 23 courses, many of which are short, one-session affairs. Advertised offerings this spring include home and business computer courses, as well as a class on using the calculator. As one of the few computer companies offering course descriptions, TI's intended coverage is interesting. One home computer course concentrates on terminology, asking such questions as "Do you need one?" and "How much do you need?", which is certainly not the way anyone ever sold cars. Business computer courses concentrate on computerizing accounting, payroll, and inventory.

Another interesting aspect of the TI approach is that it may be a triumph of merchandising over sales volume. Fifteen courses were advertised in May, but only six for the summer, which may be a function of the season. However, learning center staff are reluctant to answer questions, leaving one with the suspicion that they may not be selling many courses. The public may be skeptical, too, and just as happy to make their tuition payments to a local college's microcomputer lab or to a store selling computers as well as courses, like ComputerLand or Radio Shack.

Two Retail Chains: ComputerLand and Radio Shack

As the nation's largest computer specialty chain, ComputerLand has perhaps done the most to make a variety of equipment available to the public. Started in 1976, the chain has since established nearly 400 franchises nationwide. ComputerLands are individually owned and free to offer courses, hire trainers, send out newsletters, or engage in other educational efforts, depending upon whatever is most likely to increase sales.

One local ComputerLand, for example, opened a year ago, started offering courses within six months, and two months later built a classroom. The owner considers teaching people how to use computers an important part of his store's function and has a full-time trainer on staff for this purpose. The store offers both individual and class instruction and does on-site training as well. During the month of July, the store planned to offer courses in word processing--currently the most popular reason for buying a computer. Others cover microcomputers in general, electronic worksheets, and database management. Like other computer specialty stores, this ComputerLand also sells a wide variety of computer books and magazines, as well as software.

The manager of a ComputerLand store in Minneapolis, interviewed for an article on customer education, fills the need for instruction not only by offering courses, but by requiring new employees to spend a few weeks at home learning to use a computer before they start selling.[14] Sales personnel are also given monthly training seminars in which they learn to use new equipment and are brought up to date on new products.

Computer education begins before purchase, when customers require help and demonstration, as well as "more follow-up instruction than [with] other merchandise." Before leaving with their equipment, customers are taught basic operations, and 90% of them require more training after they get their system home.

The store offers courses for the general public in addition to the informal

training given before purchase. It sponsors a series of three two-hour classes on programming in BASIC, taught by a systems analyst and former high school math teacher. Eight to 10 people attend each session, which costs $60 for the set of three, and purchasers of some equipment get two classes for free.

Another local ComputerLand plans to start offering courses in the fall. At present, they suggest to customers wanting instruction that they look into courses offered by a nearby proprietary learning center. The store also has a variety of software samples available for customers to try prior to purchase. One of the store's salesmen was typically helpful. When told by a customer that she was primarily interested in a word processing system, he efficiently suggested three different systems from various manufacturers, all within the desired price range.

Since 1977, when Tandy's Radio Shacks announced they were adding microcomputers to their stock of electronic supplies, the firm's TRS-80 eased first into the homes of hobbyists, which produced a core of computer "literati" who wrote books about programming for the next generation of microcomputer users. From these people, Tandy seems to have evolved its approach and commitment to nationwide computer literacy. Four years ago, to serve their growing market, Tandy began opening a chain of computer centers. These 400 or so stores are part of the more than 6500 Radio Shack dealerships around the country, all owned and operated by Tandy. Computer education, as well as service, has always been part of the concept behind these centers and is perhaps an extension of the idea that Radio Shack is a place where buffs can hang around together and teach each other. From their start, computer centers have had an instructor on staff and classrooms where courses and an occasional free seminar are offered to the general public.

According to a local Radio Shack manager, the purpose of these programs is to educate the public at large so that the stores can avoid having to tutor every single customer. Courses to be offered are determined on a nationwide

basis and teaching materials are provided by corporate headquarters. This spring, Tandy's computer centers were prepared to offer three courses in BASIC programming, two in the standard microcomputer operating system, and several applications courses--word processing, database management, VisiCalc, time management, and accounting. Costing from $5 to $15 an hour, they are on average less expensive than those offered by competing stores.

In an effort to attract a greater share of the education market, in April Tandy did a mailing to every elementary and high school principal in the country, offering admission to a free "Educator's Workshop" for all interested teachers. Designed to give educators an overview of how micros are being used, of typical classroom applications, and to provide some familiarity with available courseware, these workshops are specifically not sales presentations, according to the announcement. Tandy has also made its first two BASIC programming courses available free to educators, and some others free to small businesses after purchase.

Tandy's populist appeal may help them sell computers. As its president has said, "People used to call us Nagasaki Hardware. But we are not intimidating the way IBM is to a lot of people."[15] In the current wave of price cutting, Tandy is offering education, support, and service (as well as lowering manufacturing costs) rather than cutting prices in order to stay competitive. "We have no intention of trying to gain quick market share at the expense of making money," says the director of computer marketing. As he explained in an earlier interview, "The small-business market is going to demand a certain amount of support; you can't provide that support without good profit margins."[16]

Corporate Approaches to Literacy

When two of the giants--IBM and Xerox--first put their personal computers on the market two years ago, both were more concerned about how to sell them

than with the machine itself.[17] Neither seems to have been a problem--IBM can barely keep up with the demand for its PC, and according to an advertisement, Xerox seems to be opening a chain of stores selling and servicing various manufacturers' equipment as quickly as it can acquire space.

As of this summer, IBM has opened over 40 product centers to sell and service their PCs and electronic typewriters. These centers, which emit the IBM aura of standarized design and color scheme, have included classrooms from the start. While the PC was being introduced in the fall of 1981, product centers offered free introductory seminars. These were eventually replaced by seminars given by sales staff on specific applications, which customers paid to attend.

According to an IBM representative, this summer IBM will start offering courses put together by an outside firm. Test marketed during development, they will cost $95 for a half-day session, making them by far the most expensive of the computer store courses. Information on the courses is still preliminary, but they will include courses on the new Lotus business applications package, word processing, and accounting, a computer literacy course for chief executive officers, and an offering for children at suburban centers.

Digital Equipment Corporation, the number two mainframe manufacturer, takes a different approach. Though later on the market with personal computers than archrival IBM, Digital had earlier established a nationwide chain of 30 office automation "shopping centers" and plans to double that number.[18]

These stores offer equipment, service, training, and software consulting, as well as books from Digital Press and other publishers. But they do not offer courses, either to purchasers or the general public. According to a sales representative at the Digital business center in the Merchandise Mart, the company's educational efforts are aimed at customers after purchase, and in two major ways: one, with instructional software, and two, through the Educational Services division.

A recent Digital ad in the Wall Street Journal pictured two businessmen at a monitor. Featuring Digital's campaign slogan "Computers for professionals from professionals," the ad showed the words "Welcome to computer-based instruction" on the screen. This ad demonstrates one aspect of Digital's approach to computer education: With Digital products come computer-based, interactive, self-paced instruction on the use of the equipment and applications; sufficient education, it is maintained, for their sophisticated customers to be able to use the machines.

The other aspect of Digital's training program is its Educational Services division, which offers hundreds of courses to support major products. Purchasers of Digital equipment may buy, in addition, any number of courses for their employees. A few of these courses offer general information, but most are equipment-specific and offer computer literacy by training someone how to use a computer to do something.[19]

Xerox, too, offers its own answer to providing computer literacy. Their stores, which have evolved into a rapidly growing chain of service centers, sell not only Xerox equipment, but other manufacturers' as well. The manager of three Xerox stores in Atlanta described their approach in an interview last year.[20] To entice new customers and train system purchasers, the store offers frequent seminars. To assist customers in the decision process, they feature "applications selling," relating equipment to the customer's needs. These stores include space for demonstrations and seminars, from the manager's conviction that instruction is as important as display in selling computers. The satisfied customer, one whose equipment meets his needs, will return for additional applications packages and peripherals.

Control Data is the only major mainframe computer manufacturer that does not have a microcomputer as part of its line. They do, however, supply a lot of education for computer users and sell educational services through various

subsidiaries. For people wanting employment in the computer industry, CDC established the Control Data Institute. As a service to business and industry, CDC sponsors seminars through its Institute for Advanced Technology. These are training workshops in computer-related fields such as data communications, management information systems, software analysis and design, and word processing.

CDC also has a corporate commitment to the eventual success of computer-based instruction. Since acquiring rights to the PLATO system developed at the University of Illinois, CDC has been putting money into its development and promotion. In addition to working on adapting PLATO to microcomputers and promoting it to the school market, CDC offers courses in computer literacy to the general public through the PLATO network. Accessible at nearly 100 Control Data Business Centers across the country, these PLATO learning centers provide self-paced, on-line instruction in computer literacy and management skills.[21]

STORES AS SCHOOLS

Although computer retailers and manufacturers offer instruction to purchasers, they do it in a variety of ways, each designed to enhance the image they want to convey. Local outlets, like Nabih's in Evanston, can take a more personal approach. One of its salespeople is a teenage computer whiz; another, a former manufacturer's trainer, handles customers as well as teaching courses, some of which are offered free to two or three members of a computer-purchasing family.

Nabih's, like the Farnsworth Computer Center in Aurora, is one of the surviving independent retailers. Interestingly, both offer a service not mentioned by other retailers--the "burn-in" process. This entails a complete set-up with the customer of the new equipment before it leaves the store. Retailer and customer are thus assured that it does function, and the customer is more confident before taking the equipment home.

These independent stores and the computer specialty chains, as might be

expected, all have a more informal atmosphere than those of IBM or Digital. Most of the following comments on stores as schools apply to these retailers rather than to the manufacturer's product centers, where more formalized behavior prevails.

Of the physical characteristics that might affect learning in a computer school, two seem possibly relevant: density and privacy.[22] As computer store classrooms are small, crowding could occur if course enrollment were to expand rapidly, something one local Radio Shack is experiencing as a result of its spring promotion to teachers. But as profit margins seem higher on classes than on computers, stores might be more likely to increase the number of classes than to let them be overcrowded. Related is the effect of privacy, which might be interesting to study in this environment. Students in computer classes are interacting privately with a computer--only it knows what the student is doing. When studying with a computer, one has the privacy to make miscakes largely unobserved, a selling point for many kinds of computer-based instruction.

It is, however, the social psychology of the computer store that is most interesting. These stores are a setting for education not only through the courses they offer, but in the learning environment they engender. Perhaps this is best exemplified by the Radio Shack dealers. When these stores first started selling computers, people who were comfortable in that casual environment may have predominated among their customers. In the "early days," the late 1970s, computer store owners were more likely to be technical people than retailers, a tendency that is changing. But the atmosphere of many stores is still that of technophiles hanging around and learning together. Some computer stores also attract regulars, people who keep coming back for support or advice or additional equipment--or to borrow a printer when one's own is on the fritz. This repeat business is important to the retailer, as computer marketing follows Gillette's Rule--give the razor away, and the customer will keep coming back for blades.

The selling process itself is an information exchange, and there are parallels between good sales techniques and good teaching. Computer store customers are there because they think a computer will solve a problem they have. They may not be able to articulate the problem, and they seldom know what kind of equipment will solve it, but they have a need they think a computer will fill. The good salesperson, like the good tutor, knows enough about the product to question the customer carefully, determining what he knows and being careful not to lose him, or her, by providing information he can't process, Through determining customer needs in this way, the salesperson is more able to do a good job of selling the appropriate equipment and having a satisfied customer.

Other aspects of the social psychology of teaching and learning settings are goal and authority structures. Authority relationships in a computer store differ from those of more traditional educational settings. Computer salespeople, as teachers, are frequently younger than customers, overturning one traditional relationship. Store personnel may know more about computers and applications than the customer, but the latter knows more about the computer's intended use, making another authority relationship more egalitarian. Computer store education is frequently a matter of learning together; hence a cooperative goal structure would apply. In this environment, there is much one-to-one instruction, and little competitiveness.

Various incentives are also nontraditional. With some exceptions, customer education is learning for its own sake. The store's motives are less pure: it offers courses to bring in potential buyers and to make money both from the courses and from the equipment the customer is likely to purchase. There is also no formal method of evaluation and no reward, except the intrinsic one of being able to say "I did this."

The opposite of a reward for accomplishment is failure. Too much of this

may confirm the technophobe's self-assessment of incompetence. Computer makers want to avoid this outcome, hence, the emphasis on user-friendly equipment. Further, as a Logo proponent pointed out in a recent article, computers have the potential for decreasing the gap between the two cultures—the scientists and the humanists. As technophobes master numeric manipulations by computer that they never thought they could handle with paper and pencil, the gap may narrow. If, however, the introduction to computing for nontechnical people is handled improperly, the gap will be perpetuated.[23]

Seymour Papert, Logo's chief proponent and originator, was instrumental in establishing a computer-inspired attempt to bridge another cultural gap--that between people of Third World countries and more industrialized economic systems.[24] Called the Centre Mondiale, it was set up in Paris on the premise that all people can assimilate computer culture without losing any of their own, or that people can learn to work with computers without surrendering to an externally imposed system of knowledge. The centre's structure, like that of the computer store here, is one of children and grown-ups interacting casually with each other and with computers. Like similar idealistic ventures, the centre has succumbed to real-world pressures that have interfered with its operation, but it remains useful as a model and as an institution with which to compare other people/computer environments.

Another example of computer-inspired good works exists closer to home.[25] A small chain of computer stores in Northern New Jersey has offered free computer workshops to the unemployed as a way for them to ascertain whether a computer career was a viable option. The chain also offers "hands-on seminars for technophobes," on the premise that everyone needs to know something about computers, and that some people need more encouragement to learn than others.

Computer Literacy for Grown-ups

In his lectures and books on the history of American education, Lawrence

Cremin makes great use of the term willy-nilly, implying a kind of education that goes on outside of formal schools and without organized instruction. His configuration of education includes the educational functions not only of institutions formally established to provide education--schools--but also museums, television, newspapers and magazines.[26] Cremin also lists agricultural fairs as educational, and perhaps computer stores would fall under that category. Certainly, at least while microcomputers are being introduced to the general public, the computer store is serving an educational function.

The term computer literacy has been credited to Arthur Luehrmann, who now runs a consulting and publishing firm by that name. Luehrmann has vigorously advocated widespread computer literacy, which he defines as learning enough about computers to have some control over them without reliance on an expert, a notion similar to Papert's at the Centre Mondiale in Paris. The process, he says, takes time and patience. The goal is to learn what a computer can do and how to tell it to do what you want.[27]

The various courses offered by computer stores around the country seem to be--willy-nilly--providing computer literacy for a large part of the interested public, and perhaps by osmosis for many who are indifferent. Concern for our children has in the past few years gotten microcomputers into schools the country over, but a similar institutional response for grown-ups has not yet occurred. Computer stores have, without any grand-scale purpose or design, responded to this need by providing a service that results in computer literacy for adults.

The computer store is not a school, however. There is casual instruction that goes on and some training, but these stores are educational only in a broad sense. Perhaps they are not schools because they lack elements that seem essential to an environment for disciplined learning--an authority structure that makes student subordinate to teacher, a formal method of evaluation,

externally imposed incentives and rewards. "Instruction" does not really apply either, because the teaching is too casual. It lacks specific objectives that teacher and students can make a contract to meet. Although computer stores may fit one of Cremin's categories of informally educational institutions, the instruction offered is not deliberate, systematic, or sustained. It may accomplish its purpose--a form of computer literacy--but this is more a service than schooling.

A structured study of the educational function of computer stores might propose such questions as: What are the goals of the students, and did the instruction enable them to meet these goals? How important is intrinsic motivation in informal schooling? To what do students attribute success or failure, and how essential is teacher support in this setting? Also interesting would be questions regarding information processing, significant both to instruction and to computers.

Perhaps the reason that stores cannot be schools is interference from the profit motive. Stores exist to make money, and in the case of computer stores, instruction is offered with that goal in mind. Computer stores have helped educate a marketplace. They have not provided a model for instruction, but that is not their intention. Perhaps the idea of computer literacy as a subject for study is still evolving, and these stores are making a contribution to that evolution. If the subject develops into a codifiable hierarchy of skills, concepts, and objectives, formal instruction in them can be offered. And then it will be the role of the school to teach them.

NOTES

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